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EXAMINER

MELLON, DAVID C

ART UNIT

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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,455	Applicant(s) TIMMS ET AL.	
	Examiner DAVID C. MELLON	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 17 and 22-24 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17 and 22-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20060524</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is only a summary of the invention according to claim 1, not the entire invention. Correction is required. See MPEP § 608.01(b).
2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 22 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

Regarding claim 22, the recitation of “arranged differently depending on the fuel passing through the magnetic field of the cartridges and a ratio of the width of the fluid supply conduit to which the device is attached to the length of a section of the fluid channel along which the at least one magnet extends” lacks enablement to one having

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ordinary skill in the art at the time of the invention. The specification sets forth similar phrasing to the claim on P8/L11-16. However, the specification is silent as to any manner of arrangement. Furthermore, there is not set forth any correlation between fuel types and structural ratios of the fluid conduit. Additionally, Applicant has not set forth any exemplary working examples detailing how one having ordinary skill in the art would have arrived at a particular arrangement based on a given ratio and fuel. Also, Applicant is silent as to any specific type of fuels treated. Accordingly, one having ordinary skill in the art at the time of the invention would not have been capable of making or using the invention as claimed without undue experimentation to first arrive at a correlation between fuel type and ratio to achieve an appropriate arrangement of magnets. Additionally, Applicant does not set forth how arrangements of magnets vary nor has Applicant provided more than one example arrangement in the drawings or specification.

Regarding claim 23, the recitation of "arrangement of the polarity of the magnets inside the internal magnetic cartridges and external magnetic cartridges changes according to the fuel type and quantity, fuel temperature, fuel pressure, time between magnetization and combustion, and required dwell length ratio of the device" lacks enablement to one having ordinary skill in the art at the time of the invention. The specification sets forth similar phrasing to the claim on P8/L18-23. However, the specification is silent as to any manner of arrangement. Furthermore, there is not set forth any correlation between fuel types, fuel conditions, and structural ratios of the fluid conduit. Additionally, Applicant has not set forth any exemplary working examples

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detailing how one having ordinary skill in the art would have arrived at a particular arrangement based on a given ratio, fuel conditions, and fuel. Also, Applicant is silent as to any specific type of fuels and their properties and operational conditions treated. Accordingly, one having ordinary skill in the art at the time of the invention would not have been capable of making or using the invention as claimed without undue experimentation to first arrive at a correlation between fuel type, fuel properties, and structural ratios to achieve an appropriate arrangement of magnets. Additionally, Applicant does not set forth how arrangements of magnets vary nor has Applicant provided more than one example arrangement in the drawings or specification.

5. **Claim 17 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for cross section ratios of 1:1.2-1:2.4, does not reasonably provide enablement for 1:2.5.** The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. The claimed 1:2.5 does not fall within a range disclosed in the specification. Accordingly, the specification does not provide sufficient enablement to enable the accuracy of the claimed range. Specification discloses ranges on P4/L10-15.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 22 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Regarding claims 22 and 23, the claims are rendered indefinite because it is unknown what configuration the magnetic apparatus is supposed to be in. Accordingly, the claims are further indefinite because they fail to set forth any further limiting structure to the apparatus as claimed previously and merely attempt to establish a method without necessary structure for performing the method.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 4-5, 8-9, 10-11, 13, 22-23, and 24 are rejected under 35

U.S.C. 102(b) as being anticipated by Williamson (USP 5,520,158).

Regarding claims 1 and 5, Williamson discloses in figures 1 and 2 a magnetic fluid treatment device (Abstract) comprising:

- at least one fluid channel (4 - conduit within housing 2),
 - the or each fluid channel having at least two peripherally located magnets (plurality of magnets 12 on top and bottom of conduit shown in figure 2),
- the device being adapted to co-operate with a fluid supply conduit (4), so that, in use, fluid flowing through the fluid channel is subjected to a magnetic field (C1/L35-46);

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- wherein the at least two magnets are located on opposite sides of the or each fluid channel and have a separation of less than about 90mm (9.5 mm, see C4/L38-55).

Regarding claim 4, Williamson discloses in figures 1 and 2 a magnetic fluid treatment device (Abstract) comprising:

- at least one fluid channel (4 - conduit within housing 2),
 - the or each fluid channel having at least one peripherally located magnet (plurality of magnets 12 on top and bottom of conduit shown in 2),
- the device being adapted to co-operate with a fluid supply conduit, so that, in use, fluid flowing through the fluid channel is subjected to a magnetic field (C1/L35-46);
- wherein a magnetic field strength in a section of the at least one fluid channel along which the at least one magnet extends is between substantially 0.02T and substantially 1.0T (500 Gauss, C4/L19-35).

Regarding claim 8, Williamson further discloses operating at 500 Gauss (C4/L19-35).

Regarding claim 9, Williamson further discloses the device treats a specific fluid which is a fuel (C6/L40-50, see also C1/L35-45).

Regarding claim 10, Williamson discloses in figures 1 and 2 a magnetic fluid treatment device (Abstract) comprising:

- at least one fluid channel (4 - conduit within housing 2),

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- the or each fluid channel having at least one peripherally located magnet (plurality of magnets 12 on top and bottom of conduit shown in 2),
- wherein the at least one magnet is removably received in a body section of the device (C2/L45-67, inherently since the body section is bolted into the system, the entire body can be removed and accordingly, the magnets are removed).

Regarding claim 11, Williamson further discloses the body section is non-ferrous (conduit 4 C3/L45-50).

Regarding claim 13, Williamson further discloses the device is fitted within an existing fluid supply conduit (C1/L35-46, see also C2/L5-30).

Regarding claims 22 and 23, Williamson further discloses the arrangement of the apparatus being dependant upon various fuel factors (C3/L65-C4/L7, also C4/L38-55, see Table).

Regarding the method limitations recited in claim(s) 22 and 23, the examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious

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from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.).

Regarding claim 24, Williamson further discloses the magnetic field is applied at substantially right angles (see in figure 2, magnetic field would form right angles with magnets 180 degrees apart from each other and directly in line with the conduit).

10. Claims 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Weisenbarger et al. (USP 4,711,271).

Regarding claims 10 and 11, Weisenbarger et al. discloses a magnetic fluid conditioner (Abstract) in figures 1 and 2 comprising:

- A fluid channel (16)
- At least one peripherally located magnet (magnets 18a, 18b)
 - Wherein the at least one magnet is removably received in a body section of the device (C2/L30-60 - clamps)
- The body section is non-ferrous (C2/L38-45 - plastic).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 2-3, 6-7, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (USP 5,520,158).

Regarding claims 2 and 6, Williamson discloses in figures 1 and 2 a magnetic fluid treatment device (Abstract) comprising:

- at least one fluid channel (4 - conduit within housing 2),
 - the or each fluid channel having at least one peripherally located magnet (plurality of magnets 12 on top and bottom of conduit shown in 2),
- the device being adapted to co-operate with a fluid supply conduit, so that, in use, fluid flowing through the fluid channel is subjected to a magnetic field (C1/L35-46);

Williamson does not explicitly disclose a ratio of cross-sectional areas of the fluid supply conduit to the total cross sectional area of all the fluid channels in the range of 1:1.2-1:2.4. It would have been obvious to one having ordinary skill in the art at the time of the invention to have had a ratio as such since Williamson establishes that there is a difference in cross sectional areas, see in figure 2, magnet housing is wider than the fluid conduit. Accordingly, one having ordinary skill in the art would have chosen a ratio as such to improve fluid exposure to magnetic fields. Furthermore, absent some showing of secondary evidence, the relative dimensional ratios of the cross sectional areas are not patentably distinct from the prior art teaching of Williamson because [W]here the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently from the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 220 USPQ 777 (1984). Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Accordingly, Applicant has not established a criticality of the ratio variable.

Regarding claims 3 and 7, Williamson discloses in figures 1 and 2 a magnetic fluid treatment device (Abstract) comprising:

- at least one fluid channel (4 - conduit within housing 2),

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- the or each fluid channel having at least one peripherally located magnet (plurality of magnets 12 on top and bottom of conduit shown in 2),
- the device being adapted to co-operate with a fluid supply conduit, so that, in use, fluid flowing through the fluid channel is subjected to a magnetic field (C1/L35-46);

Williamson does not explicitly disclose a ratio of the width of the fluid supply conduit to the length of the fluid supply conduit to be on the order of 1:20-1:30. It would have been obvious to one having ordinary skill in the art at the time of the invention to have had a ratio as such since Williamson establishes that there is a such a ratio, see in figure 2, and also see C4/L38-55. Accordingly, one having ordinary skill in the art would have chosen a ratio as such to improve fluid exposure to magnetic fields. Furthermore, absent some showing of secondary evidence, the relative dimensional ratios of the width and length are not patentably distinct from the prior art teaching of Williamson because [W]here the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently from the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 220 USPQ 777 (1984). Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Accordingly, Applicant has not established a criticality of the ratio variable.

Regarding claim 17, Williamson discloses all of the claim limitations as set forth above.

Williamson does not explicitly disclose a ratio of cross-sectional areas of the fluid supply conduit to the total cross sectional area of all the fluid channels in the range of 1:1.2-1:2.5. It would have been obvious to one having ordinary skill in the art at the time of the invention to have had a ratio as such since Williamson establishes that there is a difference in cross sectional areas, see in figure 2, magnet housing is wider than the fluid conduit. Accordingly, one having ordinary skill in the art would have chosen a ratio as such to improve fluid exposure to magnetic fields. Furthermore, absent some showing of secondary evidence, the relative dimensional ratios of the cross sectional areas are not patentably distinct from the prior art teaching of Williamson because [W]here the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently from the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 220 USPQ 777 (1984). Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Accordingly, Applicant has not established a criticality of the ratio variable.

15. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (USP 5,520,158) and in view of Sanderson (USP 3,951,807).

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Regarding claims 12 and 14, Williamson discloses all of the claim limitations as set forth above. Williamson does not explicitly disclose the use of internal removably retained magnet cartridges.

Sanderson discloses a magnetic treatment apparatus (abstract) in figure 1 which has magnets 12 which are slidably received within the housing 18 (see also C2/L55-C3/L15). Casing 18 is non-metallic. The magnets form separate channels with inner casing 18 and collars (c3/L25-40).

Williamson and Sanderson are combinable because they are concerned with the same field of endeavor, namely that of magnetic treatment devices.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the magnetic treatment device of Williamson to further include internal magnets as taught by Sanderson for the purpose of improving magnetic purification by increasing the amount and continuity of the magnetic field exposed to the fluids.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID C. MELLON whose telephone number is (571)270-7074. The examiner can normally be reached on Monday through Thursday 7:00am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/
Primary Examiner, Art Unit 1797

/D. C. M./
Examiner, Art Unit 1797